THE

Art of Shooting Flying:

Familiarly explain'd by way of

DIALOGUE.

CONTAINING

Directions for the Choice of Guns for various Occaſions.

An Account of divers Experiments, diſcovering the Execution of Barrels of different Lengths and Bores.

With many uſeful Hints for the Improvement of Young Practitioners, entirely new.

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Advertiſement.

THE writer of this little tract has ventured to preſent it to the public, not preſuming on his literary qualifications as an author, but on his long experience; and being ſenſible, that only an experienced workman could ſupply the uſeful obſervations herein comprized. He has found that errors early admitted may be long retained. The ſcope of his work then, is to explode ſome common miſtakes, and reduce the art of SHOOTING FLYING to ſome method; not indeed to the rigorous accuracy of mathematical demonſtration; for the mechanical manner here adopted ſeems more fit for the uſe of practitioners. He has aimed to be conciſe, and not to tax his readers by the length of his performance. He hopes that little faults in point of ſtile will be overlooked: and if in any meaſure it anſwer the practical deſign, ſhall think his labour ſufficiently rewarded.

THE

THE
ART of SHOOTING FLYING
EXPLAINED.
IN A
DIALOGUE
BETWEEN
AIMWELL and FRIENDLY.

FRIENDLY.

MR. Aimwell, your ſervant. I think it as great a rarity to find you abroad, as it is to find ſome people at home. And yet you often talk of ſhooting; but I don't ſee when you find leiſure,

AIMWELL.

The nature of my buſineſs, Sir, requires as much application of my hands as poſſible: 'tis true I am fond of ſhooting, and perhaps the more ſo, as this exerciſe has been of great uſe to me, in carrying off thoſe diſorders which are frequently the conſequence of too cloſe application to a ſedentary buſineſs: ſo that I think four or five hours in a week ſpent in this diverſion is not thrown away, as it ſeems to give new vigour to the animal ſpirits, and enables me to return to buſineſs with greater chearfulneſs.

FRIENDLY.

Your argument agrees with my reaſoning. I have for ſome time thought a little of this exerciſe might have the ſame effect to relieve me from ſtudy, as it does you from buſineſs; and I have now prevailed on my father to indulge me in it, and am come with a deſign to purchaſe a gun of you.

AIMWELL.

Sir, I much applaud your prudence in conſulting and waiting for your father's approbation: it ſeems to promiſe that you will not uſe it ſo as to interfere with your ſtudy, or be hurtful to your conſtitution; for moſt things, and even the beſt may, and do often become ſo, when uſed to exceſs.

FRIENDLY.

I think myſelf obliged for this hint, which ſhall not be loſt on me. But I have ſomething more to claim from an old promiſe, which I ſhall eſteem a particular favour; that you will give me ſome inſtructions in the art of ſhooting flying, that I may be able to uſe the inſtrument I am going to purchaſe, to your credit as well as my own.

AIMWELL.

Sir, The reſpect I bear to you and your family will readily command any thing in my power to ſerve you. And as you are come to ſpend ſome weeks here, now the ſhooting ſeaſon is juſt coming on, I don't doubt but if you will ſubmit yourſelf intirely to my directions, I ſhall put you in a method by which you may with practice become a markſman. But to attain that muſt be a work of time. I aſſure you, from the little leiſure I had to practiſe, it was ten years before I became a tolerable markſman: tho' indeed I had not the advantage of a good inſtructor. But from the experience I have had, I hope to put you in a readier way to attain it.

FRIENDLY.

I ſhall be greatly obliged to you. But as to the gun, what length of barrel would you adviſe to begin with.

AIMWELL.

It is neceſſary for any gentleman who ſports much to have two guns: the barrel of one about two feet nine inches, which will ſerve very well for the beginning of the ſeaſon, and for wood-ſhooting: the other about three feet three inches, for open ſhooting, after Michaelmas: the birds by that time are grown ſo ſhy, that your ſhoots muſt be in general at longer diſtances. But if you intend one gun to ſerve for all purpoſes, than a three feet barrel (or thereabouts) I think moſt proper.

FRIENDLY.

I have heard ſome of my acquaintance talk of guns of two feet ſix inches in the barrel that will kill at fifty or ſixty yards. Nay, I heard one aſſert, that he threw ſix ſhot into a quarter of a ſheet of paper at a hundred yards diſtance.

AIMWELL.

Well, Sir, I am not ſurpriz'd you have heard of theſe great things. I am frequently told ſtories to the ſame purpoſe. But there is nothing gentlemen ſeem to like more than impoſing on themſelves and others in the diſtances they ſhoot at. I know you have read Euclid, and therefore don't doubt but you will make uſe of his method of reaſoning, as a ſtandard of your obſervations, which will be uſeful at your firſt ſetting out, either in this or any other branch of knowledge. And tho' in this Art every thing will not admit of a mathematical demonſtration; yet I ſhall not demand your aſſent, but as it ſhall appear reaſonable from experiments, and hope you will not forget ſomething that is ſimilar to it when you become a teacher of men. If you can call on me by ſix in the morning, I will attend you to a proper place, and try ſome experiments on guns of different lengths, to give you a ſufficient idea of what can be done by guns in general, and to prevent your being impoſed on by every idle prater on this Head.

FRIENDLY.

I am already oblig'd for the favour of this converſation, and will attend at your time: 'till when, adieu.

AIMWELL.

Your ſervant.

* * *

DIALOGUE II.

FRIENDLY.

GOOD-MORROW, Sir.

AIMWELL.

Sir, Good-morrow to you. You are very punctual, to be here rather before the time appointed.

FRIENDLY.

I knew you were an early riſer, and am deſirous you ſhould think me diligent to receive your inſtructions: but am ready to wait your leiſure.

AIMWELL.

Very well, Sir, I am not diſpleaſed with it; for I hate a ſluggard, there is nothing to be made of him, But come, Sir, I am ready. I ſee you have brought your ſervant with you, whoſe attendance may be uſeful: and I have a man who is a very good hand at ſhooting at a dead mark. For my part, I am not fond of it: for guns ſeem to recoil more at a fixed mark than at a flying object; and I am apt to lay my face ſo cloſe, as to get a ſmart blow on the cheek-bone, eſpecially if the barrel lay too ſtraight in the ſtock. I have choſe out ſeveral guns, from two feet ſix inches to three feet ſix inches, which I think is the greateſt difference neceſſary for ſhooting flying. And here comes my man with a quire of large brown paper, chalk, a hammer, and nails. Pleaſe to let your ſervant take ſome of the guns, and pen, ink, and paper, for you to take down what I ſhall direct.

FRIENDLY.

Is it far to this place?

AIMWELL.

We are juſt by it: you ſee my man, who went before, is nailing up a ſheet of paper, and has chalk'd a place in the middle of it to take aim at.

FRIENDLY.

But pray of what uſe are thoſe long ſplines?

AIMWELL.

They are two ten feet ſplines, for the greater eaſe and exactneſs of meaſuring the diſtances we ſhall try the guns at. He has meaſured the diſtance of ſix ſplines, and put down a mark there for twenty yards. Now, Sir, if you will paſs over this diſtance two or three times, 'till you can do it pretty exactly at twenty paces, and the ſame when he has meaſured thirty, forty, and fifty yards, it will be of great uſe to you by and by, to learn to judge of the true diſtances you ſhoot at; and therefore you may practiſe the ſame as often as you have opportunity.

FRIENDLY.

Pray what is your method of loading? I have been told that gunſmiths in general put in a large quantity of ſmall ſhot, to make them fill the paper well that they ſhoot at,

AIMWELL.

'Tis very true, indeed, they are often oblig'd to it, when gentlemen won't be ſatisfied with what is reaſonable for a gun to do; and it is a common practice in this country to load with a pipe bowl of powder, and a bowl and a half of ſhot, and when they find they can't kill often, think they don't put ſhot enough, ſo put in more, and are obliged to leſſen the quantity of powder to prevent its recoilling; not conſidering this axiom, "that action and

" re-action are equal"---that upon diſcharge of the powder, the gun is forced back, as the ſhot is forwards, in proportion of the weight of ſhot to the weight of the gun; ſo that by putting in a larger load of ſhot, and leſs powder, you will be ſtruck more, and the bird you ſhoot at leſs: ſo that tho' you put many ſhot into the bird, they will not have force enough to kill, unleſs at a very ſhort diſtance. I have been told by a gentleman, who is eſteem'd to ſhoot very well, that when he is diſpoſed to kill at very long ſhoots, he puts in a leſs quantity of ſhot than powder; becauſe he thus finds them more efficacious. But if leſs of ſhot than powder will carry the ſhot cloſe enough for long ſhoots, they will certainly fly thick enough at ſhorter diſtances. To avoid the extremes, I uſe the beſt powder, and put in equal meaſures of that and ſhot, which in weight is much as one to ſeven. To a barrel of a middle-ſized bore, whoſe diameter is about five-eighths of an inch (which I look upon to be the beſt ſize for ſhooting flying) I put in two ounces of ſhot, No. 4. which are about 200 in an ounce, and an equal meaſure of powder. This is the charge I uſe in the field, and ſhall make uſe of the ſame in our trials: for it is prepoſterous to make uſe of a load expected to make a better ſhoot at a mark, than when you deſign to kill a bird.

FRIENDLY.

And what ſort of wadding do you beſt approve of? I have heard ſome ſay that tow is beſt; others cards ſtamped, to fit the ſize of the bore.

A I M W E L L.

Tow, I think, is uncertain. If cards be uſed, the end of your rammer muſt be almoſt as broad as the barrel will admit of, to go down free, and quite flat at the end, to prevent the card from turning; and muſt be puſh'd down gradually, to give time for the air to paſs, otherwiſe it will be troubleſome. This is therefore not the quickeſt way. Old hat may be uſed in the ſame manner, which is rather better: and ſome ſay leather ſhreds are beſt. But I cannot yet find any thing better, or ſo ready, as thin brown paper, rubbed ſoft, and cut into pieces about one inch broad and two inches long; ſo that when it is once doubled, it is an inch ſquare. I punch a ſmall hole at the corner of each piece, and put a ſufficient quantity upon a key-ring, and hang them into my button-hole, and tear off one as I want it. This being doubled, put it to the muzzle, and cloſe the corners up about your rammer (the end of which ought to continue of the ſame bigneſs for at leaſt half an inch, or rather ſomething ſmaller juſt at the end) and thruſt the paper thus put into the barrel gently down upon the powder. Your rammer will come back without danger of drawing the paper back, and will leave it cloſ'd againſt the ſides of the barrel, like a half cartridge. Put another in the ſame manner after the ſhot. When your gun is quite clean, it is neceſſary to put in a ſecond wad after the ſhot, to prevent its getting looſe.

FRIENDLY,

FRIENDLY.

Do you ram your ſhot as much as your powder? I think I have heard ſome that pretend to experience ſay, that they ram the powder well, but not the ſhot, What is your opinion of this?

AIMWELL.

After ſome experience you will find, if your gun is clean, and the wad thruſt but lightly down, that in walking the ſhot will be apt to get looſe: and if you diſcharge the piece in that ſtate, it will ſeem, by the ſmall reſiſtance it makes, as if there were no ſhot in it: and if you try one load pretty ſmartly rammed over the ſhot, and another with the wad thruſt but lightly down, at a quire of paper, you will find the charge that is rammed will penetrate the deepeſt, and that the ſhot will fly as regularly as the other which is not rammed,

FRIENDLY.

Well, Sir, it ſeems rational enough; and I ſhall follow your counſel, and try it the firſt opportunity, becauſe I think it a point neceſſary to be thoroughly convinced of,

AIMWELL.

The gun two feet ſix in the barrel is loaded; you ſee I have got a reſt to be the more exact in our trials: fire it at twenty yards. Well ſhot, Bring the paper this way, and draw three or four lines acroſs it with your chalk there. By this means you may eaſily count the ſhot-holes; which pleaſe to do, whilſt I load it again, and put down, —The gun two feet ſix inches long, the barrel ſix tenths and a half diameter, weight two pounds fourteen ounces, and weight of the whole gun ſix pounds two ounces.

The firſt ſhot at 20 Yards	196	Medium 208
Second at ditto - -	220	
Firſt of ditto, at 30 yards	104	94
Second at ditto - -	84	
Firſt of ditto, at 40 yards	35	29
Second at ditto - -	23	
Firſt of ditto, at 50 yards	16	20
Second at ditto - -	24	

By the ſhoots made with this gun, you may eaſily perceive it is difficult to make two ſhoots alike: and therefore no certain judgment can be made of its goodneſs by two or three ſhoots. For inſtance, the ſhoots here made at forty yards, are not much above half the number of ſhot there ought to be in proportion to thoſe at twenty and at fifty yards, as you will ſee upon further trials.

No. 2. A barrel two feet nine inches, weight three pounds two ounces, weight of the whole gun ſix pounds five ounces; bore, ſix tenths and a quarter.

Firſt

Firſt ſhot, at twenty yards	218	Medium 220
Second, at ditto - -	222	
At thirty yards - -	115	119
Ditto - - -	123	
At forty - - -	68	6
At ditto - - -	64	
Ditto, with hat wad - -	62	
Ditto, at fifty - - -	40	38
Ditto - - -	36	

The powder and ſhot took up two diameters and three quarters each in the barrel.

No. 3. Of a gun whoſe barrel is three feet long, and two pounds fifteen ounces weight, the bore is ſix tenths and a half of an inch diameter, and is nearly a cylinder, 'till within three inches of the muzzle, which is opened a little; the weight of the whole gun five pounds thirteen ounces.

Firſt ſhot, at twenty yards	238	Medium 229
Second, at ditto - -	220	
Firſt, at thirty yards -	48	54
Second, at ditto - -	60	
Firſt, at forty yards - -	36	53
Second, at ditto - -	50	
Third, at ditto - -	40	
Fourth, at ditto - -	86	
Firſt, at fifty - -	40	43
Second, at ditto - -	46	

No. 4. Of another gun, the barrel three feet long, and ſix tenths and three quarters diameter; weight three pounds three ounces; and whole weight of the gun ſix pounds ſix ounces.

Firſt ſhot, at thirty yards	120	Medium 125
Second, at ditto	130	
Firſt, at forty yards	45	45
Second, at ditto	46	
Firſt, at fifty yards	26	32
Second, at ditto	38	

No. 5. Of a gun, the barrel three feet and two inches long, the bore ſix tenths and three quarters diameter; two ounces of ſhot loaded it, two diameters, and the ſame quantity in meaſure of powder; weight of the barrel three pounds twelve ounces; the whole gun ſeven pounds three ounces.

Firſt ſhot, at twenty yards	216	Med. 260
Second, at ditto	304	
Firſt, at thirty yards	142	127
Second, at ditto	96	
Do. without any wad betwixt ſhot and powder	129	
Firſt, at forty yards	94	77
Second, ditto	60	
Ditto, with four hat wads betwixt the powder and ſhot	70	
Ditto, with a ſingle wad betwixt powder and ſhot	94	
Firſt of ditto, at fifty yards	32	52
Second ditto	52	
Third ditto	74	

No. 6. Of a gun three feet ſix inches the barrel, weight three pounds ſix ounces; weight of the whole gun ſix pounds eight ounces; two ounces of ſhot, and the ſame quantity of powder loaded it, two diameters of each.

At thirty yards - -	146	Med. 148
Ditto - - -	177	
Ditto - - -	116	
Do. without wad over the ſhot	154	
Ditto, at forty yards -	60	79
Ditto - - -	94	
Ditto - - -	101	
Ditto - - -	70	
Ditto - - -	84	
Ditto, with a double wad -	68	
At fifty yards - -	34	33
Ditto - - -	31	
Ditto - - -	33	

No. 7. A barrel three feet three inches long, weight three pounds twelve ounces, tried in a rough ſtock.

At thirty yards - -	144	144
At forty yards - -	59	Med. 76
Ditto, with hat-wad - -	94	
At fifty yards - -	33	38
Ditto - - - -	44	

No. 8. Another barrel three feet three inches long, weight three pounds ſeven ounces, and was fine bored; tried in the rough ſtock.

At

At forty yards	94	Med. 97
Ditto	100	
Ditto, with hat-wad	99	
At fifty yards	66	75
Ditto	85	

No. 9. A five feet barrel of the ſame bore and load.

At fifty yards	53	Med. 58
At ditto	64	

No. 10. A real Spaniſh barrel three feet eight inches long.

At thirty yards	110	Med. 103
Ditto	96	
At forty yards		60
At fifty yards		25

The owner of this gun ſhoots well, and he ſays he frequently kills with it ſeventy yards; but unleſs he put in more powder and ſhot, I think there is but little chance for killing fifty yards at any certainty.

No. 11. One ditto three feet two inches, ſeven tenths diameter.

At forty yards	77
At fifty	28

No. 12. A four feet barrel, ſix tenths and a half diameter.

At ſorty yards - -	84	Med. 77
Ditto - - - -	58	
Ditto - - - -	73	

Ditto, after cutting off eight inches of the barrel.

At forty yards - -	50	Med. 45
Ditto - - -	32	
Ditto - - -	54	

Upon ſuppoſition that a gun loſes half the quantity of ſhot every ten yards, (and it appears from the experiments to be nearly ſo) this gun has loſt about a yard diſtance in killing, to one inch taken off from the length of barrel: but the difference of the force with which the ſhot was thrown was ſcarce diſtinguiſhable.

No. 13. The ſecond-beſt barrel, three feet three inches, Spaniſh faſhion, fixed into a block.

At forty yards - - - -	71
Second ditto - - - -	62
Third ditto, card over the powder, and paper over the ſhot - -	39
Fourth, without any wad over the powder	70
Fifth ditto, more wad over the ſhot -	85
Sixth do. double wad over ſhot and powder	56
There was at the firſt three ſhots put into the target, being a round board of three	

feet diameter, which the papers were nail'd to - - - -	446
The laſt three ſhoots which were made on the other ſide of the target, and the ſhot ſeem'd to be thrown in with much the ſame force on each - -	471

No. 14. A barrel, Spaniſh faſhion, weight four pounds two ounces; three feet ſix inches long.

At forty yards - - - -	75

No. 15. A barrel, Spaniſh faſhion, weight three pounds four ounces; three feet ſix inches long.

At thirty yards - -	110	Medium 113
Ditto at ditto - -	116	
Ditto at forty - -	64	

AIMWELL.

It appears from various other trials beſide theſe, which I have made, that the ſhot fly as regularly, or more ſo, and with as much force, without any wad betwixt the powder and ſhot, as it does with wad only. 'Tis difficult to keep the ſhot from mixing with the powder; and when it does, that will affect it: but it proves thus much at leaſt, that it does not ſignify how thin your wad is betwixt the powder and ſhot, ſo it does but keep them from mixing. But the ſhot fly the thicker and ſtronger from having a pretty good wad cloſely ramm'd over them.

FRIENDLY.

FRIENDLY.

I am well pleaſed with theſe experiments, as they have given me a better idea of the manner of barrels carrying ſhot than I could have imagined. I ſhall now be oblig'd for your opinion, whether Spaniſh barrels are really better than Engliſh ones of the ſame weight, as I find they are ſo eſteemed by many gentlemen.

AIMWELL.

The repute of the Spaniſh barrels aroſe chiefly from their lengths, being in general about three feet eight or ten inches long, of a ſmalliſh bore, and that nearly a cylinder; by which means the force of the powder is continued longer upon the ſhot: and I have already ſhewn you, that length of barrel will do more than weight. I have try'd a great many Spaniſh barrels very carefully, and could never find them to carry the ſhot better than thoſe made in England of the ſame form and ſize. (But the foreigners have found out our foible in that as in moſt other of their rarities: that is, if they are but far fetch'd, and dear bought, they are ſure to pleaſe.) The Engliſh form of making them very ſtout at the breech, is in order to balance them better in hand, and make them come eaſier to ſight. It anſwers in that reſpect; but then it makes them much heavier upon the whole: and a ſportſman will not chooſe to carry more weight than is neceſſary. I have already ſhewn you, that from the preſent method of ſhooting flying, we have no occaſion for guns to kill ſo far; and therefore ſhorter and lighter guns will better anſwer our purpoſe, as they are readier to come to ſight, and will kill far enough.

FRIENDLY.

I ſee you have a great variety of guns of different lengths of the Spaniſh form; which with what you have ſaid, makes me think you rather give the preference to the Spaniſh form.

AIMWELL.

Indeed I do, for ſeveral reaſons. Firſt, I never ſaw a gun of the Spaniſh form burſt near the breech, tho' many of them are very ſmall or weak: therefore 'tis not neceſſary to add ſuch a quantity of metal on account of ſtrength; it can be only with a deſign to balance it the lighter forward. But as barrels of common lengths will balance very well, it anſwers no good or uſeful purpoſe to make barrels ſo ſtout at the breech. Again, they often draw thoſe barrels thinner forward about the middle, in order to make them the more handy, and to look neater; tho' I think it no addition to its beauty, and this will take off from the force the ſhot is carried out with: ſo that a barrel of the Spaniſh faſhion, continued with a more regular thickneſs will kill farther than one of a greater weight where there is more metal than is neceſſary at the breech, and too thin forwards. Another diſadvantage in a barrel ſo made, is, that it will be bigger and clumſier about the lock part, and the ſtock will not have ſtrength enough. For if you take notice, you will oftner find the ſtock ſplit with a little uſe from the breech to the foreſide nail, than in thoſe of the Spaniſh faſhion, where there is room to leave the ſtock ſtronger, without making it clumſey. But I would not have you imagine, that I approve of barrels too thin at the breech. I would have them of a proper ſubſtance for ſtrength in every part, and ſo as to balance properly. I have experimentally ſeen a good killing barrel loſe much of its force in carrying ſhot, by filing it thinner; which ſhews, that barrels ought not to be drawn ſo thin; ſince a tolerable ſubſtance is neceſſary, both to carry the ſhot ſmartly, and for ſafety.

FRIENDLY.

Since you are ſo free and ready to inform me, if I am not too inquiſitive, pray explain to me why the bore you mentioned, of about five eighths of an inch diameter, is the beſt ſize for ſhooting flying? ſince the generality of barrels appear to me to be much larger.

AIMWELL.

'Tis very true, that birding guns in general are of a larger bore: but if you judge of them by the ſize at the muzzle, they appear to be much larger than they really are ; many of them being much opened at the muzzle, and gradually leſs for about a foot, and then continue nearly a cylinder to the breech. This form is uſed to make them carry the ſhot cloſer by letting them open gradually in coming out. The reaſon ſeems plauſible, and appears ſometimes to have ſome effect, when open'd gradually a ſmall matter. But there is no reaſon to open them too much ; for in that caſe, the fire will have room to paſs off on each ſide all round the wad, when it comes to the part much wider and then loſe of its force, and may alſo mix with the outermoſt part of the ſhot, and cauſe them to ſcatter the more from a true direction. Many barrels are again open'd a little wider gradually towards the breech, in order to carry the ſhot with greater force, by firſt meeting with ſome reſiſtance, and then paſſing free: (and alſo that the whole quantity of powder may take fire quicker.) This has alſo appeared to me to anſwer the effect deſired ; and yet I have met with barrels that have been as nearly a cylinder as poſſible in the bore, yet have carried the ſhot as round and as ſtrong as any other. For which reaſon, I practiſe opening them but very little, and gradually at each end, as I ſee occaſion ; which method I find anſwers beſt. As to the ſize, 'tis certain there muſt be a ſized bore, which carries a particular load better than any other. Now, as ſhooting flying is very difficult for ſome to attain, and even the beſt markſmen have oftentimes their miſcarriages, they are willing to make uſe of as large a load as they can, without hurting themſelves; and therefore ſome will chooſe a large bore, thinking it will carry a larger load. 'Tis very true that it will require a larger load: but then the gun muſt be heavier in proportion to the load, or (as I have already obſerved) they will be hit harder, and the bird not ſo hard. If two ounces of ſhot, and the ſame meaſure of powder be thought ſufficient (and I think it is to ſhoot at any ſort of game) then a barrel, whoſe bore is about five eighths of an inch (or rather a little more) diameter, will be loaded about two diameters and a half of each, and the weight of the gun may be about ſix pounds. But thoſe who will ſhoot with two ounces and a quarter of the ſame meaſure of powder, muſt carry a gun of about ſeven pounds, which will ſeem heavy to moſt people after three or four hours walk. Indeed, I have known two ounces and a half, and three ounces of ſhot, made uſe of to a gun under that weight: but then a ſmaller quantity of powder was uſed, and conſequently could not be ſo efficacious as a ſmaller quantity of ſhot, and equal meaſure of powder: and if a ſmaller bored barrel is loaded too deep, tho' the gun be heavy enough, the ſhot will not be thrown cloſer than they would be with a proper load; that is, about two diameters and a half of each. And if a larger bore have not its proper load, it will not kill ſo ſmartly as the ſame load in a bore a bore proper for the load. There are but few who will care to ſtand againſt a proper load for a barrel ſix eighths of an inch diameter, except poachers, who are covetous of killing every thing, and will ſtand the bruiſing for a ſmall advantage: but fair ſportſmen are not ſuch ſpit-hunters; they purſue for the ſake of the diverſion, and to ſhow their dexterity.

FRIENDLY.

I am greatly obliged for this account of barrels, which is fuller and more ſatisfactory than I expected. And now I think I may venture to chooſe a gun. There ſeems to be one of the ſize and bore you recommend.

AIMWELL.

'Tis very true, Sir. But you are not yet judge enough to chooſe a gun. There is more to be obſerved than the ſize and bore of the barrel. That gun is made for a broad ſhouldered man: the ſtock is bent ſideways, as if you would lay the plate of the lock upon your knee, and with your hands could bend it: and the point or toe of the butt turns out a little to the right, ſo as to bring the breech of the barrel to his eye in a direct line with the muzzle, without conſtraint of bending down his head much, which a ſhort necked man cannot do without danger of hurting his face. If you pleaſe, give me leave to recommend this gun to you. The ſtock of it is of a middling bend and length, and quite ſtrait ſideways; which, as you are ſlender, and your neck ſomewhat long, will beſt ſuit you. The length of the butt from the breech is about fifteen inches and a half; and if a ſtraight ſpline is laid to the barrel, ſo as to touch the muzzle and breech, and continued to the butt, you will find that the butt drops about three inches from that line, (and for a man who has a ſhort neck, it ought to drop about a quarter of an inch more) and at about three inches from the butt, where the face touches, about two inches and a half: and if he is broad and ſtout, and he cannot reach his arms ſo forward, fourteen or fourteen inches and a half in length from breech to butt may be ſufficient. Pleaſe to take hold of the gun, and balance it upon the fore finger of your left hand, (which is a proper ſituation for your left hand) then join your right hand with your fore finger, juſt to feel the trigger, and your thumb upon the cock, and throwing it off a little ſpace from you in a horizontal direction, to prevent its rubbing againſt your ſhoulder, in taking it up: ſlip your thumb off the cock, and draw the butt to your ſhoulder, ſo as to feel it gently, and point the muzzle to any object; and if you find the breech in a line with the muzzle, without any conſtraint, it then lies very well to ſuit you. Now, if you obſerve, you will find an error, which many gunſmiths perſiſt in, is here remedied: the trigger is hung at a right angle with the pull of your finger, and as backward from the guard as it will admit of: Whereas the trigger is frequently hung to form a right angle with that part of the ſtock where it hangs; in which caſe the finger draws to a diſadvantage, being in drawing it forced cloſe to the ſtock, and that poſition ſhortens the lever, and cauſes it to draw off harder than in this, where you find the finger more naturally ſlips to the end of the trigger, and lengthens the lever: and 'tis neceſſary to take the advantage of this as much as may be, in order to have a good ſtrong ſear-ſpring, without which the lock cannot move well nor ſafely; for if the ſear-ſpring is made too weak, in order to make it draw off eaſy, it will then be ſubject to catch upon the half cock; and if it draws off too hard, you cannot be certain of ſhooting any flying object. Another diſadvantage which attends the trigger being hung too forward is, that the middle finger will be ſo near the guard as to receive a ſmart blow upon the diſcharge of the piece: I have ſeen many perſons who have had a callous ſwelling upon this finger, from being batter'd by the guard through this defect. I think it neceſſary to give you this hint, as you may ſometimes have occaſion to ſhoot with other guns, or to make choice of a gun elſewhere.

FRIENDLY.

I believe I ſhall fix on this gun, as it ſeems very handy to me, and comes eaſy to ſight. But pray be ſo kind to inform me, if you have any objection to a barrel of two ſeet ſix inches, more than its carrying the ſhot: for the gun we try'd of that length ſeem'd to carry the ſhot very ſmartly and cloſe, at 30 yards.

AIMWELL.

Your obſervation, Sir, is true: it threw in ninety ſhot, on a medium at thirty yards, into a ſheet of paper, which one may venture to affirm would kill a bird if held right, and it may ſometimes kill forty yards. But pleaſe to take notice, that the weight of it was ſix pounds two ounces: and if you compare the ſhoots with thoſe made with the three feet gun, whoſe weight was but five pounds thirteen ounces, you will find them ſo much ſuperior, that it muſt evidently kill farther with the ſame load: which, I think, is one objection to your propoſal. The next is, ſhould a ſhort gun go off by any accident whilſt you are loading it, you are more expos'd to danger, as you will more naturally lean over the muzzle; which, however, in ſhort or longer guns ought always to be avoided. What have once happened may happen again. A gentleman, whom I knew very well, was out by himſelf a ſhooting, and juſt as he had loaded his gun (though he knew of no defect in the lock, 'till it was afterwards examined) it went off, and ſcalp'd him ſo as to leave the forehead bare to the ſcull. We may ſuppoſe he laid for ſome time ſenſeleſs.

As ſoon as he recover'd a little, he ſaw his hat ſhot to pieces, and himſelf bloody: he imagined what had happened: he tied a handkerchief about his head, and walk'd home, and is now perfectly recovered.

FRIENDLY.

A narrow eſcape with life indeed; and I am greatly obliged for this caution; and indeed the frequent misfortunes which happen from guns, ſhew we cannot be too careful in the uſe of them: and I muſt agree with you, that we are not ſo much expos'd to ſuch an accident as this from a long gun as from a ſhort one.

AIMWELL.

There is one more objection, which I think an over-balance to the advantage, if it be thought one, of a ſhort gun's coming more readily to ſight, which is: though a longer gun requires a little more care to bring it to the object, when it is once brought it is not ſo eaſily put aſide as a ſhort one, nor does a little variation of the muzzle carry the ſhot ſo wide from the object as the ſame variation of a ſhort one does; which I think may be thus eaſily explained. Draw a line upon a ſheet of paper, and from a point, with a pair of compaſſes, cut the line at two inches and a half, and three inches and a half: from the ſame points of interſection, ſet off one-tenth of an inch from the line, and draw lines from the firſt point through each of theſe; and at about twelve inches from the three and a half, you will find it will vary about half an inch from the firſt line, and the other which interſects at a tenth diſtance from the line at the two inches and a half, will at the twelve inches be found to vary about three quarters of an inch. Now, if you count a foot for an inch, the one will have varied ſix inches, and the other about nine inches, at the diſtance only of twelve feet; which I think plainly ſhews that a ſmall variation of a ſhort barrel will cauſe a greater error, which will increaſe as the diſtance of the bird is farther from you. But if your barrel is too long and not ready to come to ſight; then your extraordinary lengths will not anſwer your expectations, as you may judge from the experiments we have made, that good barrels will not kill above a yard for an inch in length of barrel, from three feet to four feet in length; and therefore a barrel of three feet or three feet three inches, I think, anſwers the beſt.

FRIENDLY.

Well, Sir, you have ſufficiently ſatisfied me in all the queſtions I am at preſent able to aſk, as to the choice of guns: and I would not have been without this knowledge upon any account; as I am certain it will enable me to go on with eaſe and courage, and I ſhall ſooner become a proficient in the art of ſhooting flying. But, pray what is next to be done?

AIMWELL.

AIMWELL.

I ſhall now give you a ſhort leſſon, which will take you a long time to get: but I muſt firſt take the flint out of your gun, and put in a piece of wood of the ſame form, that you may not wear the ſteel off the hammer by frequently ſtriking it down. And now, Sir, take the piece, carry it upon your left arm, with the thumb of your right hand upon the cock, and fixing your eye upon any particular object, preſent the gun in the manner before directed, and in the motion of bringing it up cock it: do it pretty briſkly, but in no hurry, ſo as to confuſe yourſelf: in raiſing the cock take care that you preſent the muzzle as near as you can at once to the object, only rather below, that you may have a little matter to raiſe it, and as quick as you can: briſkly draw the trigger as ſoon as you have got an exact ſight at the object, and continue to keep your muzzle at it for ſome time after you have drawn the trigger, leſt your gun ſhould hang fire; which if it happen to do in a very ſmall degree, it will render your ſhot quite uncertain, eſpecially if your mark is moving towards right or left, or any way from the line: but by means of your keeping the gun in motion with the object, a ſhot may be ſometimes recovered, though it hangs fire. This you may practice in your room, or when you walk, at any object ſteady or flying; and do it as often as you can conveniently, 'till you can readily get the object, and draw down in proper time: by which means you will make a greater progreſs in one month than by the common method of ſhooting in a year or two.

It may not be amiſs now juſt to give you a hint concerning croſs-ſhooting: from the many experiments you have ſeen of guns carrying ſhot, you muſt have an idea how the ſhot ſpread at different diſtances.

A very good gun at twenty yards will ſpread the ſhot ſo, that in a circle of twelve or fourteen inches no bird can eſcape alive. Now, if the ſituation obliges you to ſhoot at a bird at this diſtance flying croſs, either to the right or left, if you take aim ſix inches before it, ſuppoſing the bird not to have mov'd from the time of your drawing the trigger to the ſhots hitting it, the bird will be entered far enough into the circle of the ſhot to be ſecured: but as the bird is in motion, it muſt have moved ſome way before the ſhot can reach it: ſo that 'tis moſt likely the bird will meet the center ſhot; and ſhould you be ſomething longer in drawing the trigger, you will have the better chance from the rear-ſhot. From the ſame reaſoning, if you take exact aim at the bird, and draw briſkly, you may kill it with the rear-ſhot: but by obſerving the above method, you have double the chance, as the bird muſt paſs through the whole diſk of the ſhot. I think I have already remarked, from the experiments we have made, that the ſhot delivered from a gun in general loſe or decreaſe half the quantity every ten yards, or thereabouts; ſo that at forty yards there will not be thrown in above a fourth part as it would into the ſame ſpace at twenty yards. From which it appears, that if you take aim a foot before a croſs ſhot at forty yards, you will be the moſt likely to meet the bird with the center ſhot; and which by the by I look upon to fly the ſtrongeſt, and will be more efficacious at long diſtances than the diverging ſhot; for whether it be the ſhot ſtriking againſt each other, or againſt the air, at firſt coming out of the muzzle, or whatever be the cauſe of their diverging, I think it muſt in ſome degree retard their motion. But if there is a briſk wind, it will certainly bend the ſhot; you muſt therefore conſider, whether the wind blows with the bird, or againſt it; if it blows with it, you need little more than obſerve the general rule, by reaſon the wind will help the bird forward nearly as much as it bends the ſhot; but if it flies againſt the wind, the ſhot will be bent more than the bird is retarded, and therefore you ought to take aim at a greater diſtance before the bird.

Theſe hints may be of ſervice; and from theſe you may judge of all other diſtances. Yet practice can only make you a maſter in this critical point, as alſo of the oblique ſhoots. For inſtance: ſuppoſe a bird at any diſtance from you flies off in a diagonal line, you muſt take aim but half as far before it as you would do at a croſs ſhoot at the ſame diſtance; and in the ſame proportion at a greater or leſſer angle. The different marks are very prettily deſcribed by an ingenious gentleman of St. John's College, ſome years ago, in a poem call'd PTERYPHLEGIA, which is ſo fit for the occaſion, that I ſhall give it you in his own words.

“ Five general ſorts of flying marks there are,
“ The lineals two, traverſe and circular:
“ The fifth oblique---which I may vainly teach;
“ But practice only perfectly can reach.
“ When a bird comes directly in your face,
“ Contain your fire awhile, and let her paſs,
“ Unleſs ſome trees behind you change the caſe.
“ If ſo, a little ſpace above her head
“ Advance the muzzle, and you ſtrike her dead.
“ Ever let ſhot purſue where there is room;
“ Marks hard before, thus eaſy will become.
“ But when a bird flies from you in a line,
“ With little care I may pronounce her thine.
“ The unlucky croſs-mark, or the traverſe ſhoot,
“ By ſome thought eaſy, yet admits diſpute.
“ As the moſt common practice is to fire
“ Before the bird, will niceſt time require;
“ For too much ſpace allow'd, the ſhot will fly
“ All innocent, and paſs too nimbly by:
“ Too little ſpace, the partridge, ſwift as wind,
“ Will dart athwart, and bilk her death behind.
“ This makes the point ſo difficult to gueſs,
“ 'Cauſe you muſt be exact in time, or miſs.

“ Full forty yards, or more, to left or right,
“ The partridge then obliquely takes her flight:
“ You've there the advantage of a ſideling line;
“ Be careful, nor her inward ſide decline.
“ Thus in the mark is ſtiled circular,
“ There's nothing more requir'd but ſteady care,
“ T'attend the motion of the bird, and gain
“ The beſt and fartheſt lineal point you can;
“ Carrying your piece around, have patience 'till
“ The mark's at beſt extent, then fire and kill.

* * *

DIALOGUE III.

FRIENDLY.

WELL, Sir, I have, for this week ſince I ſaw you, much practiſed the leſſon you gave me, and believe it will be of great uſe to me; for I find that I can already point the gun to any object very readily.

AIMWELL.

Sir, I don't doubt your application; and ſhall now put a flint into your gun, and recommend it to you to practice for ſome time the ſame method with a little prime, and then with a ſmall load of powder; which may not improperly be term'd, teaching you to ſtand fire, without the leaſt ſtarting;

ing; which is a thing very material towards the becoming a good markſman. When you are perfect in this, you may ſhoot at a mark at twenty yards, with half a charge, or a little more. By degrees, as you find you can do it well, without any fear or uneaſineſs, repeat the ſame at thirty yards, with about three quarters of a charge.

FRIENDLY.

I am oblig'd for this leſſon. I ſhall call on you again in about a week; in which time I don't doubt but I ſhall be able to handle the gun pretty dexterouſly.

AIMWELL.

I believe you will ſoon make a progreſs in ſhooting; but I have juſt thought of a method, which I ſhall now inform you of, by the practice of which you may be able to become a tolerable markſman at your firſt going into the field. Get a target made of a piece of board; let it be round, and about three feet diameter; put a ſtaple into the edge of it to hang it by; get a ſpline ten or twelve feet long, and to one end of it fix a hook to hang the target on, and near the other end make ſeveral holes to hang it to an iron pin, which is to be fixed up in a convenient place at a proper height, ſo as the target when hung on it is ſuſpended ſometimes ſomething higher, and ſometimes lower than a point blank mark. This is to be put in motion like a pendulum, and you may ſhoot at it whilſt it is moving, either to the right or left, with about half a load, at twenty yards diſtance; and by the breadth of the target, you will eaſily ſee how the body of the ſhot went, either before or behind the mark, and the next ſhoot you may take aim accordingly. It will be neceſſary that you prepare ſome whitening, that you may with a bruſh cover your ſhots every time before you ſhoot again; and with a piece of charcoal, you may make a mark to take aim at. You may alſo ſometimes ſtand obliquely to it; by which means you make a very great variety of marks. When you have made this way of ſhooting very familiar to you, try it with about three quarters of a load at thirty yards; and by much practice of this method, you may become a better markſman at firſt going into the field than you would be without it by a year's practice in the field; becauſe you may hereby diſcover an error, that you perhaps would otherwiſe perſiſt in; and as you can repeat your ſhoots at any time when you have leiſure, as often as you like: which is not the caſe in the field; for ſport is ſo very uncertain, that you may go out ſeveral times and not get many ſhoots; ſo that, unleſs a man is very alert, and ſtrong enough to undergo a deal of fatigue, he can attain the art of ſhooting flying but very ſlowly: whereas by this contrivance it becomes a ſcience, and may be practiſed with ſatisfaction by the curious, whether weak or ſtrong. The reaſon why you are to uſe but half a load at firſt, is, that it may not in the leaſt diſturb your poſition, or cauſe you to ſtart; which if you ſhould get a habit of at firſt (as you may do, by overloading) you will find it difficult to attain to any certainty: for you muſt be very ſteady, and endeavour to keep the gun to the mark after you have drawn the trigger, as has before been obſerved, and the ſhot will fly thick enough at twenty yards to make your obſervations from; and you may encreaſe your load, and the diſtance you ſhoot at, by degrees, as you find it convenient: but never be covetous of overloading, though you want to kill at long diſtances, for that will not anſwer your expectations.

It may not be improper in this place to take notice of the force of powder. As there is an amazing difference in the ſtrength of powders, it is neceſſary that you try your powder, and increaſe or decreaſe its quantity, in proportion to its weakneſs or ſtrength. There are ſmall machines for this purpoſe, with a lock ſomething like a piſtol, which are convenient, as they are portable. But I have lately contrived one, which ſeems to be much more ſatisfactory. I ſhall endeavour to deſcribe it to you, as follows. It is made of forged iron, one inch and three quarters ſquare, and two inches and a half long, with a ſhank about two inches long, on which part was filed a coarſe ſcrew, to fix it into a block by. A round ball is made of forged iron, about one inch and ſeven tenths diameter, and weigh'd twelve ounces. At the top of the iron was a hollow, made to receive about a third part of the ball, and fitted it very cloſe. In the middle of this hollow a hole was drill'd, about three tenths of an inch diameter, and one inch and a quarter deep, which held eighteen grains of powder: a place was ſunk on one of the edges of the ſquare for a pan, and a touch-hole drill'd. Thus compleated, it was ſcrew'd into a block, to point ſomething higher than an angle of forty-five degrees, that the ball might lay the ſteadier in the hollow. After this I made the following experiments.

	Yards
Some Dutch powder, large grain'd, threw the ball - - -	1 1-half
Some powder bought at the grocers, at 16d. per pound, near - -	4
Battle powder - - -	8 1-half
Double ſtrong ditto - -	8 1-half
Beſt double ſtrong ditto - -	12

The experiments were tried firſt with the ſtrong powder, which increaſed the ſecond trial about a yard and a half, and third trial near a yard more. After which, the iron being a little warm'd, the trials with the ſame powder came pretty nearly alike, and each ſort was tried three or four times: the ball was alſo carried very nearly in the ſame line. From which circumſtances I conclude this the beſt method of proving gunpowder that I have yet met with.

If you have a deſire to be acquainted with the nature and compoſition of gunpowder, and the good and bad qualities attending it, I recommend to your peruſal the tracts on New Principles of Gunnery, by the late ingenious Benjamin Robins, Eſq; wherein, by a new contrivance, he has not only determined the force of any quantity of gunpowder, but alſo the velocities of balls diſcharged from barrels of ſeveral lengths, in a moſt accurate manner. He alſo makes it appear, that the incurvated track of balls to the right or left, or otherwiſe from the line, is occaſioned partly from the reſiſtance of the air on the inequalities of the ſurface, and partly from a whirling motion the bullet has acquired in coming out of the barrel. I think it is not unlikely, that the great difference of our ſhoots made with the ſame quantities of ſhot from the ſame piece may be from the ſame cauſes, as ſome of the ſhot are not very round, and ſome of them may acquire a greater degree of that whirling motion than others in parting from each other, which will continually increaſe the deflection as they go on from the line. If this be the caſe, we ſhould not endeavour to throw them with more force than is neceſſary; becauſe, he proves, that the reſiſtance of the air will increaſe in a much greater proportion to the force added than has hitherto been ſuſpected, and will conſequently increaſe the deflection of theſe ſhot which have receiv'd ſuch a motion. Upon the whole, therefore, I think, that if you uſe the beſt double ſtrong powder, two-thirds of the quantity will have as much force as the full charges of common powder, and be ſufficient to kill at 50 yards, which is as great a diſtance as a ſport man will in general attempt to ſhoot at, and indeed greater than he ought to ſhoot at: for if we will make the lives of poor birds our diverſion, we ought to put them to as little miſery as we can; and therefore ſhould not ſhoot without being certain they are within our reach, ſo that the ſhot will fly thick enough to kill them outright. I therefore recommend it to you to begin with that quantity of the beſt powder, and not increaſe it, unleſs you find it neceſſary.

I have now given you all the hints I can recollect ſerviceable for the improvement of a young practitioner; but it muſt be from much exerciſe that you will become a markſman. As to your conduct in the field, you will have opportunities of going out with different perſons, who will differ much in their opinions; I ſhall therefore leave it to your own judgment to deal on every occaſion as experience may direct. As you are going to leave this part of the country to-morrow, and the ſhooting ſeaſon is juſt at hand, I ſhall diſmiſs you with the following hints, always neceſſary to be remembered:

Take care to keep your powder from getting damp, which will weaken it in proportion to the quantity of moiſture it receives.

Before you take the field, examine that your barrel be clean and dry, and clear the touch-hole with a feather, which you may leave remaining in it until you load; and oil the ſprings of the lock.

Take with you flints, a turnſcrew, and a worm, upon your rammer.

Load not 'till you are near the place of action. It will not be amiſs to fire off a little powder firſt, to warm the barrel; if you do not, it is neceſſary to put in a little more powder for the firſt load.

Prime not too full.

Ram down your powder very gently with a ſingle wad of ſoft paper over it; and pretty tight with a double wad over the ſhot.

When you have fired, load again as briſk as poſſible, before the barrel cools, as the heat will expel any dampneſs from the powder, and increaſe its force.

Be careful, yet not timorous.

Raiſe your piece gently to the object.

Take time, and never ſhoot without aim,

Be ſilent, and avoid the ſun.

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